

EPA United States Environmental Protection Agency Washington, DC 20460 Work Assignment						Work Assignment Number 5-01				
						<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:				
Contract Number EP-D-11-006			Contract Period 04/29/2011 To 03/31/2016 Base Option Period Number 4			Title of Work Assignment/SF Site Name 03 RIA Support				
Contractor EASTERN RESEARCH GROUP, INC.					Specify Section and paragraph of Contract SOW K & L					
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance From 04/01/2015 To 03/31/2016				
Comments: This is the initiation of a work assignment for Option IV period. Hours have been authorized for the work plan and also for work to begin (100 hours). This work does not duplicate any work previously performed or is currently being performed.										
<input type="checkbox"/> Superfund Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO (Max 2) <input type="checkbox"/> Note: To report additional accounting and appropriations date use EPA Form 1900-69A.										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:			LOE: 0					
04/29/2011 To 03/31/2016										
This Action:					100					
Total:					100					
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee:			LOE:			
Cumulative Approved:				Cost/Fee:			LOE:			
Work Assignment Manager Name David Misenheimer							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number 919-541-5473			
							FAX Number:			
Project Officer Name Margaret Dougherty							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number: 919-541-2344			
							FAX Number:			
Other Agency Official Name							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number:			
							FAX Number:			
Contracting Official Name Marsha B. Johnson							Branch/Mail Code:			
_____ (Signature) (Date)							Phone Number: 919-541-0952			
							FAX Number:			

Statement of Work

- I. **TITLE:** O3 RIA Support for Controls and Cost Analyses
Contractor Name: Eastern Research Group (ERG)
Contract #: EP-D-11-006
WA #: 5-01

- II. **WORK ASSIGNMENT CONTRACTING OFFICER'S REPRESENTATIVE (WACOR):**
David Misenheimer
U.S. Environmental Protection Agency (EPA)
Office of Air Quality Planning and Standards
Health and Environmental Impacts Division (MD C439-02)
Research Triangle Park, NC 27711
Phone: 919-541-5473

Alternate WACOR: Larry Sorrels, 919-541-5041 (MD C439-02)

- III. **BACKGROUND:**
EPA conducts Regulatory Impact Analyses (RIAs) as part of their ongoing review of the National Ambient Air Quality Standards (NAAQS) for the criteria pollutants. To support the NAAQS RIAs, EPA has developed a data set of control and cost information called the Control Measures Database (CMDDB). EPA has also developed a software tool called the Control Strategy Tool (CoST) that provides several types of algorithms for designing air pollutant emission control strategies. CoST uses the CMDDB and EPA's projected emissions inventories to prepare control strategies and estimate costs for meeting various alternative standards as part of the NAAQS RIAs.

Under three previous Work Assignments (Work Assignment 1-05 under Contract EPD11006 and Work Assignments 2-06 and 4-10 under Contract # EPD11006) EPA contracted support from ERG to develop updated emission reduction and cost information for Industrial, Commercial, and Institutional Boilers (ICI Boilers) related to NO_x, SO₂, and PM_{2.5} emissions. Work Assignment 4-10 also included a task that addressed to a limited extent controls and costs for sources beyond ICI Boilers.

The purpose of this Work Assignment is to provide support to the O3 NAAQS RIA control strategy and cost analyses by updating control and cost information for various air pollution sources, addressing existing weaknesses and areas of uncertainty in existing cost calculation methods, and preparing additional documentation that describes the processes that emit criteria pollutants and the applicable air pollution controls, as described in Section IV.

IV. **DESCRIPTION AND TASKS:**

The WACOR is authorized to provide technical direction. All reports shall follow the reporting requirement provisions of the contract. The Contractor shall not duplicate work completed for previous W.A.s.

Task #1: Prepare a Work Plan

The Contractor shall have a kick-off meeting with the EPA WACOR to discuss technical aspects of this W.A. Following this kickoff meeting, the Contractor shall provide a work plan that outlines and describes the technical approach, resources, time-line, due dates for deliverables, staffing plan, and estimated costs for each of the tasks listed in this W.A. The Contractor shall have conference calls with the WACOR on, at least, a biweekly basis after approval of the work plan to plan and review progress of this W.A.

Deliverables Under Task 1

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|-------------------------------------|--|
| 1a Participation in Kickoff meeting | Within ten days of the receipt of this W.A. |
| 1b Work Plan with budget | Within twenty days of the receipt of this W.A. |

Task #2: Improve Control Strategy Emission Reduction and Cost Calculation Methods for Various Sources of Criteria Air Pollution

The contractor shall address weaknesses and areas of uncertainty in the control strategy emission reduction and cost estimation methods for high priority air pollution sources to be identified by the WACOR through Technical Direction (TD) including, but not limited to ICI Boilers and sources in the following industry sectors:

- Petroleum Refineries
- Iron and Steel Manufacturing
- Glass Manufacturing
- Oil and Gas Exploration and Transport
- Cement Manufacturing

For these sources, the Contractor shall:

- Evaluate the application of each existing cost estimation and percent reduction approach on the National Emission Inventory (NEI) (2011 platform or more recent platform), identify any weaknesses or significant levels of uncertainty and propose solutions to address them. The contractor shall perform rigorous application of existing and new or revised equations or approaches to ensure all results are reasonably accurate, identify any results that are unreasonable, and identify solutions and safeguards to avoid such unrealistic results.
- Related to the previous item, identify ranges over which each cost equation or percent reduction, or other algorithm, is applicable, and identify other approaches or equations that can be applied to sources outside of the applicable range. This could include solutions such as defining a minimum capital cost of control for small sources rather than relying on a cost/ton factor to estimate annualized capital cost.

- Develop methods for evaluating the NEI inputs to cost equations or other algorithms (e.g., stack flow rate, design capacity, design capacity units, etc), correcting the inputs to be within an acceptable level, and generating automated reports to share with EPA/Air Quality Assessment Division's (AQAD) NEI team that describe the findings and actions taken.
- Investigate the viability, and describe the pros and cons, of using alternative approaches to estimating emissions reductions and costs for controls. These alternatives could include identifying achievable parts per million (ppm) stack air pollutant concentrations for various controls, comparing those to the estimated ppm stack concentrations for each source, and determining whether the control could be applied to achieve additional reductions. The contractor shall assess whether such an approach would give reliable results. This approach may rely on stack parameters such as stack flow rate so this task shall include evaluating the reliability of such stack or other parameters as reported in the emissions inventories to determine if such an approach would give accurate results.
- Prepare documentation ready for posting on EPA's websites and for immediate incorporation into existing CoST documents that describes the equations, algorithms, and/or approaches, includes example calculations, cites references, and describes applicable ranges and limitations.
- Prepare all inputs necessary for incorporation into the CMDB in a form that can be readily used by EPA to update the database.

Deliverables Under Task 2

- Data sets and documentation describing the results of applying emission reduction and cost equations to the NEI, identifying any problems encountered, and recommended solutions for addressing the problems
- Emission Reduction and Cost Equations formatted for incorporation into the CMDB and containing all variables for populating the CMDB
- Documentation for incorporating into the CoST Equations Document, including a description of the processes and applicable control measures, description of any new or revised percent reduction and cost equations, description of the range and types of sources to which the equations apply, list of applicable Source Category Codes (SCCs), references and descriptions of how the equations were derived, and example calculations.

V. QA REQUIREMENTS:

Concerning any data preparation, to identify and eliminate errors introduced during data preparation, the Contractor shall perform quality control (QC) of the data prior to delivering data sets to the WACOR. The Contractor shall include a statement in the final reports that confirms that the data is appropriate for the intended use. Also, the Contractor shall identify in the final reports the sources of the data, any existing quality assurance (QA) information about the data (i.e., QA that was performed at the time the data were originally prepared), and the location of the QA information.

VI. REPORTING REQUIREMENTS:

1. The Contractor shall submit a work plan and cost estimate.
2. The Contractor shall submit monthly progress reports and advise the WACOR about problems in a timely manner, but at a minimum via the monthly progress reports.
3. The Contractor shall deliver all draft and final work products in accordance with the contract. In addition, the Contractor shall deliver to the WACOR each draft and final deliverable in an electronic format that is compatible with EPA-installed application software which includes word processing software Microsoft Word, spreadsheet software Microsoft Excel, and database management software Microsoft Access.
4. The Contractor shall ensure that all electronic work products are free of computer viruses, malware, or spyware.

EPAUnited States Environmental Protection Agency
Washington, DC 20460**Work Assignment**

Work Assignment Number

5-01

☐ Other ☒ Amendment Number:

000001

Contract Number

EP-D-11-006

Contract Period 04/29/2011 To 03/31/2016

Base

Option Period Number 4

Title of Work Assignment/SF Site Name

O3 RIA Support

Contractor

EASTERN RESEARCH GROUP, INC.

Specify Section and paragraph of Contract SOW

K and L

Purpose:

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Work Assignment

☐

Work Assignment Close-Out

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Work Assignment Amendment

☐

Incremental Funding

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Work Plan Approval

Period of Performance

From 04/01/2015 To 03/31/2016

Comments:

THE PURPOSE OF THIS WORK ASSIGNMENT CHANGE IS TO ADD TASKS IN ACCORDANCE WITH THE ATTACHED DOCUMENT. THE CONTRACTOR SHALL SUBMIT A REVISED WORK PLAN AND COST ESTIMATE. THIS WORK DOES NOT DUPLICATE ANY WORK PREVIOUSLY PERFORMED, OR ANY WORK CURRENTLY BEING PERFORMED BY THIS OFFICE.

☐

Superfund

Accounting and Appropriations Data

☒

Non-Superfund

SFO

(Max 2)

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Note: To report additional accounting and appropriations data use EPA Form 1900-69A.

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Authorized Work Assignment Ceiling

Contract Period:

Cost/Fee:

LOE:

04/29/2011 To 03/31/2016

This Action:

Total:

Work Plan / Cost Estimate Approvals

Contractor WP Dated:

Cost/Fee:

LOE:

Cumulative Approved:

Cost/Fee:

LOE:

Work Assignment Manager Name David Misenheimer

Branch/Mail Code:

Phone Number 919-541-5473

FAX Number:

(Signature)

(Date)

Project Officer Name Brandon Hawkins

Branch/Mail Code:

Phone Number 919-541-0880

FAX Number:

(Signature)

(Date)

Other Agency Official Name

Branch/Mail Code:

Phone Number:

FAX Number:

(Signature)

(Date)

Contracting Official Name Marsha B. Johnson

Branch/Mail Code:

Phone Number 919-541-0952

FAX Number:

(Signature)

(Date)

ATTACHMENT

Work Assignment Title: O3 RIA Support

Contract #: EP-D-11-006

Contractor: ERG

Work Assignment (WA) #: 5-01

WA Change #: 1

WA Contracting Officer's Representative (WACOR): David Misenheimer

Alternate WACOR: Larry Sorrels

Tasks

Task #3: Improve Control Measure Data for non-EGU Sources of NO_x to Support Ozone Transport Rule Analyses

The purpose of this task is to support regional ozone transport rule analysis. The contractor shall develop information for estimating the costs and impact on NO_x emissions of control measures for non-EGU NO_x emission sources emitting significant amounts of NO_x, including:

- Industrial Boilers
- Petroleum Refinery Process Heaters
- IC Engines (especially Oil & Gas)
- Turbines

Task 3 Deliverables

- Data sets and documentation describing the source categories, the control measures, and the methodologies for estimating emissions reductions and costs.
- Emission Reduction and Cost Equations formatted for incorporation into the Control Measures Database (CMDB) and containing all variables for populating the CMDB.